

SECTION IV.—RIVERS AND FLOODS.

RIVERS AND FLOODS, MARCH, 1918.

By ALFRED J. HENRY, Meteorologist.

[Dated: River and Flood Division, Weather Bureau, Apr. 30, 1918.]

ICE.

On February 28 the ice had passed out of the great majority of streams. The ice broke up and passed out of the Missouri River from Sioux City, Iowa, to the headwaters during the second and third decades of the month. There was practically no damage. On the upper Mississippi likewise the ice went out without gorging.

The breaking up of the ice in Michigan rivers was finally accomplished in March, although the rivers had reached flood stage with an unbroken ice cover in February.¹ The official in charge of the Saginaw, Mich., Weather Bureau Office reports that the Saginaw River rose to 1.6 above flood stage before the ice sheet broke up. There was no gorging of consequence, although damages to cellars and business property in the Grand Rapids district along the river in February and March by overflow water is estimated as follows: Buildings, including factories, \$36,450; crops, \$700; suspension of business, \$82,500. Value of warnings, \$25,450. In the Saginaw, Mich., district property loss was about \$56,500 and loss due to suspension of business \$40,000. In New England the usual heavy ice formed and passed off without damage. In northern New York ice began to break up and go out in February. A gorge formed below Schenectady on the Mohawk River. Fortunately the absence of rainfall during the last half of March prevented serious damage to Schenectady property. Local ice gorges in the Hudson in the neighborhood of Albany caused some loss and inconvenience but no serious loss. The property loss in the Mohawk valley due to ice gorges is estimated at \$3,500.

River ice in the Susquehanna in southeastern New York was unusually heavy; it began to break up as early as February 28, when long shallow gorges were formed in the vicinity of Binghamton. These passed out on March 14-17 without serious damage.

RAIN FLOODS.

The most important flood of the month was in the Ohio between Pittsburgh, Pa., and the lower reaches of the river. See Table 3. This flood was the result of a single rainstorm which passed over the watershed from west to east on the 13th-14th. The rains over the upper watershed started a flood in both tributaries of the Ohio in western Pennsylvania and a moderate flood wave passed downstream, decreasing in volume as it reached the lower river and not causing even a flood stage at Cairo, Ill., at the mouth of the river.

The property loss due to this flood in the Pittsburgh district was mainly due to flooded cellars and suspension of business; it is estimated that the total loss was \$25,000.

In the Cincinnati district damage of about \$100,000 was sustained mainly in the Kanawha, Elk, and Gauley valleys.

A moderate flood occurred in the James River of Virginia due to the same rainstorm that caused the Ohio flood. The damage at Richmond, Va., amounted to about \$1,000. A sudden flood occurred on the Guadalupe River of Texas on the 29th, due to heavy rains over a limited area. The loss to crops is estimated at \$200; live stock, \$600; total, \$800.

The usual tabular matter follows:

TABLE 1.—Flood stages in Atlantic drainage during March, 1918.

River and station.	Flood stage.	Above flood stages—dates.		Crest.	
		From—	To—	Stage.	Date.
Connecticut: White River Junction, Vt.....	Feet. 13	23	23	Feet. 13.0	23
Mohawk: Schenectady, N. Y.....	15	23	23	15.9	23
Susquehanna:					
Bainbridge, N. Y.....	11	(†)	3	16.9	* 27
		7	8	14.4	7
		14	15	12.8	14
Harrisburg, Pa.....	17			15.8	16
Towanda, Pa.....	16	15	15	16.9	15
Wilkes-Barre, Pa.....	20	15	16	23.0	15
Susquehanna, West Branch (Pine Creek):					
Waterville, Pa.....	13			11.8	14
Chenango: Sherburne, N. Y.....	8	(†)	4	9.5	* 26-27
		7	7	8.6	7
Chemung: Corning, N. Y.....	16	14	14	18.8	14
James:					
Buchanan, Va.....	15	14	14	17.0	14
Columbia, Va.....	18	15	15	21.4	15
Richmond, Va.....	10			9.6	16

* February.

† Continued from February.

TABLE 2.—Flood stages in Great Lakes drainage during March, 1918.

River and station.	Flood stage.	Above flood stages—dates.		Crest.	
		From—	To—	Stage.	Date.
Maumee: Fort Wayne, Ind.....	Feet. 15			Feet. 13.5	15
Shiawassee: Chesaning, Mich.....	17			14.6	18
Flint: Fosters, Mich.....	18	15	15	18.0	15
Saginaw: Saginaw, Mich.....	19	16	20	23.5	22
Tittabawassee:					
Midland, Mich.....	12	19	25	18.0	21
Paines, Mich.....	20			18.7	21
Pine: Alma, Mich.....	7	15	16	7.4	16
		18	24	8.9	21
Chippewa: Mount Pleasant, Mich.....	11	20	25	12.9	21-22
Cass: Vassar, Mich.....	14	14	24	17.0	21
Grand:					
Easton Rapids, Mich.....	6	(†)	3	7.0	* 28
		14	18	9.0	14
Lansing, Mich.....	11	14	18	16.7	15
Grand Ledge, Mich.....	6	1	7	10.5	5
		14	20	11.0	15
Portland, Mich.....	12			11.5	16
Ironia, Mich.....	21	1	1	21.0	1
		15	20	24.1	17
Lowell, Mich.....	15	1	3	15.2	1
		15	21	18.1	17
Grand Rapids, Mich.....	11	(†)	7	15.8	* 21
		14	24	16.4	18
Red Cedar: East Lansing, Mich.....	8	1	1	8.8	1
		13	19	12.0	15

* February.

† Continued from February.

¹ Reported by Meteorologist Chas. F. Schneider.

TABLE 3.—Flood stages in Mississippi drainage during March, 1918.

River and station.	Flood stage.	Above flood stages—dates.		Crest.	
		From—	To—	Stage.	Date.
Ohio:	<i>Feet.</i>			<i>Feet.</i>	
Pittsburgh, Pa.	22	15	16	25.8	15
Davis Island Dam (Bellevue, Pa.)	25			24.9	14
Dam No. 2 (Coraopolis, Pa.)	26	15	15	26.6	15
Beaver Dam (Beaver, Pa.)	30	15	16	36.5	15
Dam No. 12 (near Wheeling, W. Va.)	36			34.8	16
Dam No. 13 (near Wheeling, W. Va.)	43			39.1	16
St. Marys, W. Va.	38			34.4	17
Marletta, Ohio	33	17	17	34.0	17
Parkersburg, W. Va.	36			35.3	17
Dam No. 19 (near Tallman, W. Va.)	39			35.9	17
Dam No. 22 (near Ravenswood, W. Va.)	42			39.4	17
Point Pleasant, W. Va.	40	14	18	46.9	15
Dam No. 26 (Hogsett, W. Va.)	50			49.8	15
Dam No. 28 (near Huntington, W. Va.)	50			48.2	16
Dam No. 29 (Normal, Ky.)	50	15	16	52.3	16
Portsmouth, Ohio	50	16	17	52.1	16
Maysville, Ky.	50	16	17	50.6	16-17
Cincinnati, Ohio	50	17	18	51.5	17
Madison, Ind.	46			41.7	13
Cloverport, Ky.	40	20	21	40.5	20
Henderson, Ky.	33	(†)	3	37.8	*16-13
		20	24	35.1	22
Mount Vernon, Ind.	35	(†)	2	39.0	*18
		21	23	35.6	22-23
Evansville, Ind.	35	(†)	2	39.8	*17
		20	24	37.2	22
Shawneetown, Ill.	35	(†)	4	40.2	*25
		23	23	35.0	23
Allegheny:					
Olean, N. Y.	12	14	15	13.2	15
Franklin, Pa.	15	15	15	16.0	15
Parkers Landing, Pa.	18	15	15	19.0	15
Mosgrove, Pa.	20	15	15	21.7	15
Freeport, Pa.	22	15	15	24.5	15
Dam No. 3 (Springdale, Pa.)	27	15	15	27.0	15
Herr's Island Dam (Pittsburgh, Pa.)	22	15	16	27.2	15
Clarion: Clarion, Pa.	12	15	15	12.2	15
Monongahela:					
Fairmont, W. Va.	25	14	15	30.4	14
Greensboro, Pa.	20	14	15	30.6	14
Lock No. 4, Pa.	31	14	15	37.8	14
Cheat: Rowlesburg, W. Va.	12	13	14	13.6	13
Shenango: Sharon, Pa.	9	14	16	13.3	15
Mahoning: Youngstown, Ohio	7			6.9	15
Little Kanawha:					
Glenville, W. Va.	22	13	14	32.9	13
Creston, W. Va.	20	14	15	32.0	14
Muskingum: Marietta, Ohio	36			35.7	17
Tuscarawas: Norris Point, Ohio	8	2	2	8.7	2
Hocking: Athens, Ohio	17	14	14	17.4	14
Scioto:					
Larus, Ohio	11			10.6	2
Circleville, Ohio	7	15	15	7.8	15
Kanawha:					
Kanawha Falls, W. Va.	25	13	13	25.4	13
Charleston, W. Va.	30	14	15	36.1	14
Greenbrier: Renick, W. Va.	17	14	14	20.4	14
Elk:					
Sutton, W. Va.	30	(*)	13	40.0	13
Clay, W. Va.	18	13	14	32.4	14
Wisconsin: Knowlton, Wis.	12	21	23	12.9	22
Illinois:					
Peru, Ill.	14	(†)	(††)	21.8	*16
Henry, Ill.	7	(†)	(**)	13.7	*18-19
Peoria, Ill.	16	(†)	25	19.7	*20
Havana, Ill.	14	(†)	24	15.5	*24-27
Beardstown, Ill.	12	(†)	(**)	15.7	*28
Pearl, Ill.	12			11.8	1-9
Mississippi:					
New Madrid, Mo.	34			30.6	1
Arkansas City, Ark.	42			39.8	5-7
Missouri Basin.					
Missouri:					
Ree, N. Dak.	12	24	24	12.0	24
Bismarck, N. Dak.	14			13.6	23
Running Water, S. Dak.	16			14.8	27
Huron, S. Dak.	9			8.7	27
Omaha, Nebr.	19			17.3	31
Blair, Nebr.	15	31	(**)	15.9	31
Yellowstone: Glendive, Mont.	17	19	19	17.1	19
Arkansas Basin.					
Cache: Jelks, Ark.	9			8.6	1-2

* February.

† Continued from February.

†† No reading after March 26.

** Continued into April.

TABLE 4.—Flood stages in other basins during March, 1918.

River and station.	Flood stage.	Above flood stages—dates.		Crest.	
		From—	To—	Stage.	Date.
West Gulf drainage.	<i>Feet.</i>			<i>Feet.</i>	
Guadalupe: Victoria, Tex.	16	29	29	17.8	29
Pacific drainage.					
Salt River: Phoenix, Ariz.	5	9	9	8.9	9
		13	13	8.0	13
Mormon Slough: Bellota, Cal.	20			18.5	12

MEAN LAKE LEVELS DURING MARCH, 1918.

By UNITED STATES LAKE SURVEY.

[Dated: Detroit, Mich., Apr. 5, 1918.]

The following data are reported in the "Notice to Mariners" of the above date:

Data.	Lakes.*			
	Superior.	Michigan and Huron.	Erie.	Ontario.
Mean level during March, 1918:	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>
Above mean sealevel at New York	601.61	581.06	572.25	246.61
Above or below—				
Mean stage of February, 1918	-0.10	+0.21	+0.58	+0.63
Mean stage of March, 1917	-0.71	+9.62	+0.67	+1.44
Average stage for March last 10 years	+0.01	+1.18	+0.53	+0.89
Highest recorded March stage	-0.67	-1.89	-1.60	-1.20
Lowest recorded March stage	+0.95	+1.95	+1.42	+2.31
Average relation of the March level to—				
February level	-0.2	±0.0	+0.1	+0.2
April level	±0.0	-0.3	-0.7	-0.7

* Lake St. Clair's level: In March, 574.61 feet.

MEAN LAKE LEVELS DURING FEBRUARY, 1918.¹

By UNITED STATES LAKE SURVEY.

[Dated: Detroit, Mich., Mar. 5, 1918.]

The following data are reported in the "Notice to Mariners" of the above date:

Data.	Lakes.*			
	Superior.	Michigan and Huron.	Erie.	Ontario.
Mean level during February, 1918:	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>
Above mean sealevel at New York	601.71	580.82	571.67	245.98
Above or below—				
Mean stage of January, 1918	-0.22	+0.06	-0.21	-0.09
Mean stage of February, 1917	-0.68	+0.44	+0.32	+0.90
Average stage for February last 10 years	-0.07	+0.08	+0.09	+0.47
Highest recorded February stage	-0.77	-1.90	-2.08	-1.69
Lowest recorded February stage	+0.95	+1.66	+1.04	+2.15
Average relation of the February level to—				
January level	-0.2	±0.0	±0.0	+0.2
March level	+0.2	±0.0	-0.1	-0.2

¹ This report received too late for February issue of the REVIEW.

* Lake St. Clair's level: In February, 574.54 feet.